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GROWTH OF A NATURAL HISTORY MUSEUM ON THE PRAIRIE: THE UNIVERSITY OF NEBRASKA STATE MUSEUM, 1871-1996

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Abstract. *Since its founding in 1871, the University of Nebraska State Museum has been a leader in the study of the natural history of the plains and prairies of the central United States. Its history can be divided into three eras: 1) founding and first steps in a struggling new university (1871-1891); 2) the Barbour-Schultz era (1891-1970) when research focused on vertebrate paleontology and exhibition became a major focus; and 3) recent history (1970-present) beginning with the consolidation of university collections in 1970, the professionalization of museum staff, and increased access through computerization. Research and public exhibits have been prominent components throughout the history of the museum.*

The success of the UNSM is based on at least five important factors: 1) its long history of public exhibition giving the Museum a high profile with substantial public support; 2) the high quality of its scientific research contributing to the growth and importance of the collections; 3) the regular participation of faculty in teaching and students in collections research; 4) the fact that museum faculty responsibilities are primarily to the museum, focusing their attention on the use and development of the collections; and 5) the fact that the museum director reports directly to the vice-chancellor for research rather than to a dean or department chair, thus making the case for the museum at a high administrative level.

The Early Years, 1871-1891

The University of Nebraska State Museum (UNSM) is one of the older museums in the United States, established in 1871, just two years after the American Museum of Natural History. It was established as the "cabinet" of the University in the same paragraph of the University's founding documents that established the University library. At the time, natural history museums were considered central to the education of college students, male and female, because natural history was a subject of great interest and sharp

debate which had been sparked by the publication of Darwin's *Origin of Species* in 1859. In this *milieu*, natural history museums were established at the universities of Iowa, Illinois, Kansas and Minnesota at about the same time, Iowa being the first in 1858 (Table 1). From the outset, the UNSM was intended to be a museum of natural history, including archaeology and ethnology which were considered part of natural history at that time. The first catalog describing the offerings of the university announced that:

A spacious room has been set apart for the use of the Cabinet and Museum, and already between seven and eight thousand choice specimens have been secured. It is the purpose of the Board [of Regents] to place in the Cabinet a superior collection of marine shells. A contribution of models from the Patent Office will be placed in the Museum and also interesting relics from the State. (University of Nebraska 1872:12)

Samuel Aughey, the museum's first director, was a naturalist with a wide range of interests in botany, geology and zoology. Like most University of Nebraska faculty of this era, he was an ordained Protestant minister (Knoll 1995:7). During his tenure as Keeper of the Cabinet and Herbarium, or Director (1874-1883), Aughey taught and performed many public services that helped to preserve the University when it was threatened with closure in 1875. His scientific contributions were not as valuable. George Howard remarked that he possessed a vast amount of miscellaneous knowledge, but the burden laid upon his shoulders "did not foster scientific precision" (1919:28). Roscoe Pound found that Aughey's catalog of Nebraska flora was "substantially unreliable" (Bolick 1993).

During the first year of its operation, the cabinet grew with valuable mineral donations by Stephen F. Nuckolls of Salt Lake City. The next year, Professor Wilber made contributions sufficient to get his name mentioned, even though the nature of the gift was not specified. By 1875 there were 1,700 species of Nebraska flora in the herbarium and 3,000 insects in the cabinet. The promised gift of Patent Office models had arrived, and it was still the purpose of the Board to acquire a collection of marine shells. The next year, the herbarium had grown to 2,200 specimens and there were 4,000 insects in the entomology cabinet. The 1877 catalogue proudly announced that the cabinet as a whole had grown to 50,000 specimens including 5,000 insects. It was reported that all of the known fossil specimens of the Carboniferous and Dakota groups had been collected. Indian relics were added to

TABLE 1
FOUNDING DATE OF SELECTED NATURAL HISTORY
AND ANTHROPOLOGY MUSEUMS IN THE UNITED STATES

Date of Founding	Museum	Location
1799	Peabody Museum of Salem	Salem, MA
1812	Academy of Natural Sciences of Philadelphia	Philadelphia, PA
1835	Cincinnati Museum of Natural History	Cincinnati, OH
1853	California Academy of Sciences	San Francisco, CA
1854	Public Museum of Grand Rapids	Grand Rapids, MI
1857	The Michigan State University Museum	East Lansing, MI
1858	University of Iowa Museum of Natural History	Iowa City, IA
1859	Museum of Comparative Zoology, Harvard University	Cambridge, MA
1861	Buffalo Museum of Science	Buffalo, NY
1866	Peabody Museum of Archaeology and Ethnology	Cambridge, MA
1866	Museum of Natural History, University of Kansas	Lawrence, KS
1866	Peabody Museum of Natural History, Yale University	New Haven, CT
1867	Putnam Museum	Davenport, IA
1869	American Museum of Natural History	New York, NY
1869	Indiana State Museum	Indianapolis, IN
1870	Museum of Natural History, University of Illinois	Urbana, IL
1871	University of Nebraska State Museum	Lincoln, NE
1872	James Ford Bell Museum of Natural History	Minneapolis, MN
1882	Milwaukee Public Museum	Milwaukee, WI
1887	University of Wisconsin Zoological Museum	Madison, WI
1887	University Museum of Archaeology & Anthropology	Philadelphia, PA
1893	Field Museum of Natural History	Chicago, IL
1893	Arizona State Museum, University of Arizona	Tucson, AZ
1896	Carnegie Museum of Natural History	Pittsburgh, PA
1899	Oklahoma Museum of Natural History, Univ. of Okla.	Norman, OK
1900	Denver Museum of Natural History	Denver, CO
1901	Phoebe Hearst Museum	Berkeley, CA
1907	The Science Museum of Minnesota	St. Paul, MN
1910	Natural History Museum of Los Angeles County	Los Angeles, CA
1917	Florida Museum of Natural History	Gainesville, FL
1920	Cleveland Museum of Natural History	Cleveland, OH
1934	Idaho Museum of Natural History, Idaho State Univ.	Pocatello, ID
1963	Utah Museum of Natural History, Univ. of Utah	Salt Lake City, UT

Compiled from *The Official Museum Directory*, 1991.



Figure 1. University Hall, the Museum's first home. Courtesy of the University of Nebraska State Museum.

the cabinet in 1878. By 1879 all of the land and fresh water snails of Nebraska had been collected and the Board of Regents had made provisions for the collecting of birds and mammals, a large portion of which had already been mounted and placed in the cabinet. In 1883, at the end of Aughey's tenure, the cabinet contained 70,000 mineralogical and geological specimens housed in University Hall (Fig. 1; University of Nebraska 1892:10), the only university building at the time. (University of Nebraska 1873:12; 1874:12; 1875:10; 1876:11-12; 1877:12; 1878:13; 1879:13; 1884:41). In that year, catalogue course descriptions of the Department of Natural Sciences, specified that, (University of Nebraska 1884):

In Botany, Gray's text-books are used, in connection with the large herbarium in the Cabinet, and accompanied by illustrations from fresh specimen plants, and by practical observation of the habits of the flora of this region in the prairies and woods.

Lectures in geology were accompanied by "illustrations from specimens in the cabinet, and with field work" (University of Nebraska 1884:29).

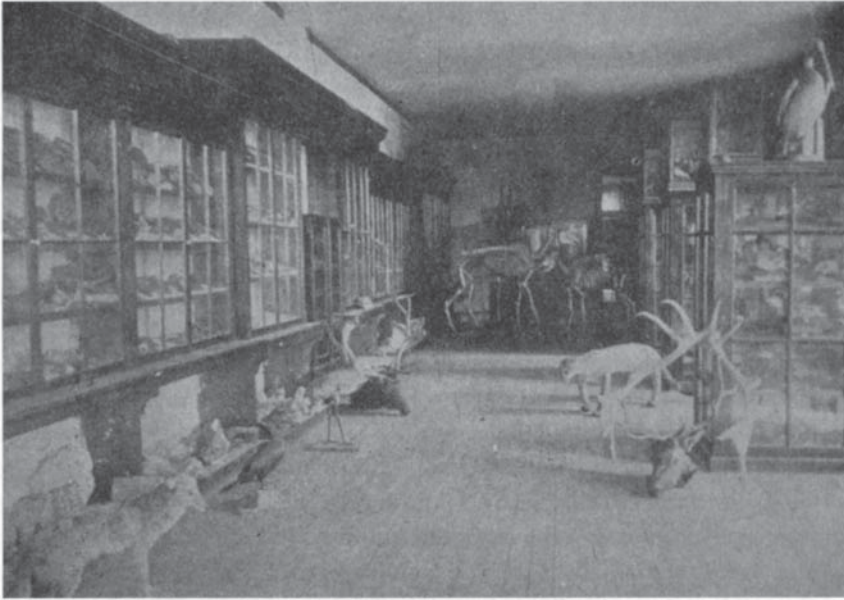


Figure 2. Exhibits in University Hall in 1884. Courtesy of the University of Nebraska State Museum.

In June 1884, the Department of Natural Sciences was split into two departments with the herbarium separated from the rest of the cabinet. Lewis E. Hicks was appointed Professor of Geology and Allied Sciences, including zoology and entomology, while Charles E. Bessey became Professor of Botany and Horticulture. Hicks was charged with direction of the cabinet. In his first annual report he referred to the wealth of materials in the cabinet as well as the necessity of improved exhibition and cataloging. He recommended the appointment of a curator “who may also be an instructor in Geology, Mineralogy, and Paleontology, but who shall be charged with the care of the Cabinet as his main business” (University of Nebraska, Chancellor’s Report 1885:57). A photograph of exhibits taken at about this time (Fig. 2) suggests that the exhibits were rather more impoverished than the number of specimens would seem to indicate.

For the first time, incoming university students were required to present “a collection of one hundred plants in herbarium” (University of Nebraska 1885:28). Though extensive laboratory work was required, the new course descriptions did not include a reference to the herbarium or the cabinet. Similarly, there is no reference to the cabinet in the descriptions of courses

in zoology, entomology, geology, or paleontology although the entomology course did require the collecting and mounting of specimens, and the class in geology collected fossil mollusca and leaf-prints (University of Nebraska 1885:33, 43-44).

In 1886, Professor Bessey inventoried the resources of the herbarium, reaching a total of 22,659 specimens in addition to several hundred flowering plants collected by Aughey that had not yet been examined. In addition there were nearly 1,500 wood and fiber specimens in the botanical cabinet. Of the total, more than one-third were the personal property of Professor Bessey (University of Nebraska, Chancellor's Report 1886:61-62). In the two years since his appointment, Professor Hicks reported that 10,000 specimens had been cataloged. He also reported that 723 specimens had been collected in the field and that an additional 1,068 specimens had been received from the Smithsonian Institution or private individuals. Hicks' catalog, which includes acquisitions as late as 1888, has only 2,804 entries though many are for multiple specimens, sometimes as many as 40 to 60 at a time. Since acquisition dates were still out of chronological order at the end of the catalog, it is evident that he still had not caught up with the backlog at the time of his resignation. No progress had been made with the entomological collection (University of Nebraska, Chancellor's Report 1886:28, 59-60).

Chancellor Manatt, himself a classical scholar, injected a new element into the responsibilities of university faculty in 1886. Recognizing the necessity of original research to achieve national and international standing for the university, he recommended the establishment of three publications series. He believed that there was already a sufficient amount of material on hand to begin the series, and that the three or four numbers a year would be necessary from the start (University of Nebraska, Chancellor's Report 1886:32; Barber 1919). His hopes were not fulfilled until the next decade, however.

The growth of enrollment in natural science courses along with expansion of the collections led to the construction of Nebraska Hall in 1888. The Herbarium occupied 624 square feet on the first floor of the new building. The geological laboratory occupied 636 square feet on the second floor and was connected to the General Museum which occupied 5,680 square feet on the second and third floors. The entomological laboratory occupied 636 square feet on the third floor, adjacent to the museum. By 1891, the entomological collection was administered by the agricultural experiment station. It numbered some 75,000 specimens, including the private collection of the Station Entomologist. Thirty display cases were arranged to show the

economic relations of certain insects. The agricultural museum, classical collection, and art collection also were independent entities associated with academic departments (Board of Regents 1888:16, 132-33; University of Nebraska 1891:95-96).

By 1891 the museum had achieved the configuration which it would retain for the next fifty years. Collections in geology, paleontology, mammology, and ornithology were in the museum, associated with the Department of Geology and Allied Sciences. The herbarium had become affiliated with the Department of Botany and Horticulture in 1884. By 1891 the entomological collection had become associated with the Experiment Station. All three collections were housed in Nebraska Hall, which had been completed just three years earlier. Bessey's inventory indicates that he had good control of the herbarium collections. The cataloging of the cabinet collections was already well underway by 1886, a task that seems to have been neglected by Aughey. Evidence from Hicks' catalog, along with various official documents, suggests that the collection was composed primarily of geological and mineralogical specimens as well as fossil invertebrates and fossil leaves. The promise of a large marine shell collection had been fulfilled in 1888. There were also some mounted zoological specimens as well as skeletal material and alcoholic specimens in the zoology collections. With the space allocated to the General Museum in Nebraska Hall, the expectation must have been that nearly all of the collection would be on exhibit, although Hicks had remarked upon the need for working and storage rooms. This may account for Barbour's recollection, more than thirty years after his arrival in the fall of 1891, that "the Museum consisted essentially of bare floors and empty cases." The skeletons of a cow and a horse were the largest and only notable objects. In Barbour's view, the highlight of the collections was a set of Nebraska birds secured and mounted by Professor Lawrence Bruner who first appeared on the list of faculty for the academic year 1890-91. Otherwise, the vertebrates were scarcely represented (Barbour 1924:3, 6; 1941:4).

The Barbour-Schultz Era, 1891-1970

The next steps in the development of the UNSM as a scientific institution began with the appointment of E. H. Barbour as Associate Professor and Chairman of the Department of Geology in 1891. Soon afterwards he was appointed Acting State Geologist by the Governor, then State Geologist by an Act of the Legislature in 1893 that identified the Chairman of the Department of Geology as the State Geologist. Barbour had earned his A.B. and

Ph.D. from Yale University where he studied with O. C. Marsh and James Dwight Dana, international leaders in the fields of paleontology and mineralogy, respectively. Before coming to Nebraska, Barbour had served with the United States Geological Survey and with Iowa College in Grinnell. He had already established a publication record which must have made him attractive to Bessey, then serving as Acting Chancellor, since both men were prolific scholars. Soon after becoming a member of the faculty, Barbour joined Bessey on the publications committee which oversaw the initiation of the *University Studies* series as well as the reports of the *Botanical Survey of Nebraska*, both in 1892. Later, *Studies from the Zoological Laboratory* was begun in 1898.

Barbour began his paleontological investigations in western Nebraska in the summer of 1891, before teaching his first class at the university. Soon he established a close relationship with Charles H. Morrill who funded most of the museum's scientific expeditions from 1893 to 1941. His first work was with the so-called "Devil's Corkscrews" that were soon determined to be rodent burrows (Fig. 3). Otherwise, most of Barbour's early work focused on large fossil mammals, notably mammoths and mastodons which were to become the centerpiece of museum exhibits. As State Geologist he also oversaw the collection of geological materials, many of which were soon exhibited in the museum. In 1894 he reported the collection of soil prisms [i.e., soil columns], three feet long, four inches wide, and three inches deep, exhibited in oak cases. The plan was to collect a prism from each county. Sixty were already on exhibit in 1894 (Barbour 1894:83)(Fig. 10).

In 1899 the museum continued to occupy the second and third floors of the east wing of Nebraska Hall which were no longer nearly empty (Figs. 4, 5). Conspicuous among the geological collections were the paleontological collections that occupied most of the second floor. The geological collections consisted chiefly of minerals, crystals, rocks, rock sections, ores, and fossils for class use. Also there were zoological mounts and a shell collection acquired by the preceding director. The acquisition of a Salish spirit canoe, Chilean mummies, and other anthropological materials in 1892 expanded the range of the museum's collections. Museum collections were supplemented by departmental collections in botany, zoology, entomology, pathology, and chemistry, as well as classical, literary, and historical departments (University of Nebraska 1899:36-38). The museum continued to grow with the absorption of the agricultural museum, as well as, additions from the State Board of Agriculture and the State Geological Survey. Morrill



Figure 3. Excavation of fossil beaver burrows known as "Devil's Corkscrews" in 1892. Courtesy of the University of Nebraska State Museum.

continued to fund geological/paleontological expeditions that usually produced large fossils (University of Nebraska 1904:52-53).

With the rapid growth of the collections, the floors of Nebraska Hall soon were sagging under the weight of the collections. Materials that could not be accommodated in Nebraska Hall were stored in basements, attics, and steam tunnels across the campus (Barbour 1912:9). In a letter to Chancellor E. B. Andrews in January 1905, Charles H. Morrill pointed out that "Nebraska Hall . . . is known to be the poorest constructed building on campus



Figure 4. Nebraska Hall. From 1887 to 1908 the Museum was located on the second and third floors. Courtesy of the University of Nebraska State Museum.

and is acknowledged to be a veritable fire trap.” He urged the construction of a new museum. As a member of the Board of Regents and a major donor, Morrill’s words carried considerable influence. A new building was built specifically for the museum in 1908 (Figs. 6-9). The supposedly fire-proof building was damaged by fire in 1912 with some loss to the collections, but continued to serve the museum until Morrill Hall, the present exhibition facility, was constructed in 1927 (Fig. 10).

Barbour was an ardent believer in public education both through museum exhibits and publication in outlets such as *St. Nicholas* and *Our Youth*, popular children’s publications of the time. He was a populist who understood the importance of making exhibits accessible to the public through such devices as allowing visitors to walk between a mammoth’s legs in the exhibition (Fig. 7). The tradition of exhibition for the public at large, rather than primarily for the university community, is still the primary orientation of museum exhibits.

The construction of Morrill Hall allowed Barbour to put into practice some of his ideas about public exhibition based upon his study of European

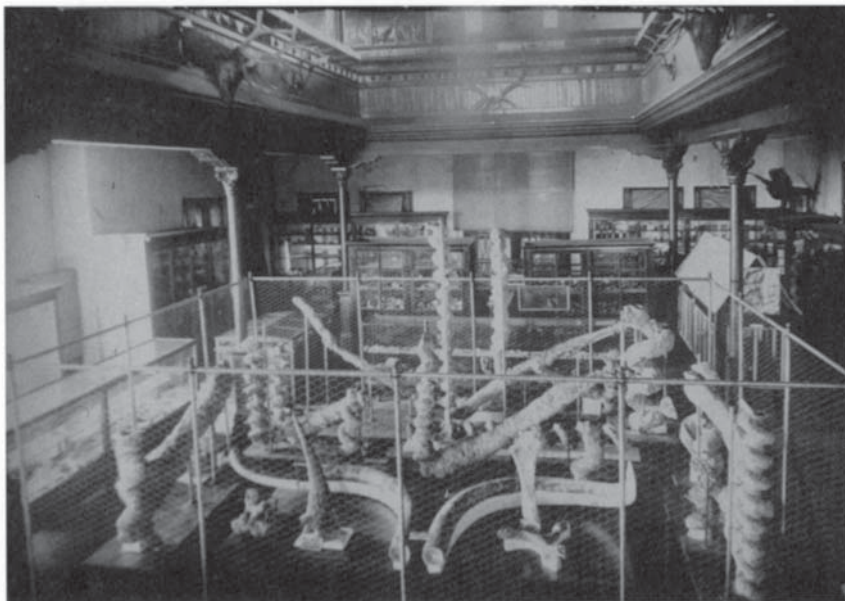


Figure 5. "Devil's Corkscrews" on exhibit in Nebraska Hall in 1894. Courtesy of the University of Nebraska State Museum. UNSM Photo # 1780.

museums that he had examined in the company of Charles Morrill. As a result he, or they, conceived of the present "Elephant Hall" in which fossil mammoths and mastodons march around the gallery toward a vanishing point in the distance. Background paintings were intended to create the aura of the environment from which the fossils came without being too specific. Elizabeth Dolan was employed to paint the impressionistic backgrounds (Fig. 11). She was a graduate of the Chicago Art Institute and Beaux Arts, France. In addition to her murals in the State Capitol Building, the Masonic Lodge of Lincoln and the State Museum, she painted a mural for the American Museum of Natural History and a fresco in the Forquex Cathedral, France. One of her most fascinating museum murals is located at the north end of Elephant Hall where she depicted a scene from the painted caverns of Lascaux (France), which date to 15,000-20,000 before present. In this mural, Paleolithic "cave-dwellers" are portrayed in near-classical poses as human beings like ourselves. In 1930 that theory was not widely accepted beyond the scientific community. Unfortunately, because of its location, this mural is seldom seen or carefully examined by museum visitors. Barbour's



Figure 6. The Museum Building in 1916, the Museum's home from 1908 to 1927. Courtesy of the University of Nebraska State Museum.

original concept for Elephant Hall was preserved when the building was remodeled and climate-controlled in 1988-90. Fortunately, most of the Dolan murals were preserved in the remodeling.

In addition to the expeditions funded by Morrill, museum research benefited from the financial support of Hector Maiben and Childs Frick. Maiben was a wealthy Cass County farmer whose long term support for the museum began in 1917. One of his principal contributions was funds for the purchase of "Archie," the largest mounted fossil elephant which is still on display in Morrill Hall. Frick was a multimillionaire paleontologist and art patron whose father, Henry Clay Frick, had made the family fortune in the coal and steel industries.

New Deal era funds from the Works Progress Administration (WPA), Civilian Conservation Corps (CCC) and National Youth Administration also contributed to museum research activities (Fig. 12). Paleontological investigations took place across the state. Beginning in 1938, many WPA workers were employed in the laboratory of the museum to remove fossils from field casts under the direction of professional preparators.



Figure 7. E. H. Barbour standing in Mammouth Arch in the Museum Building in 1927. Courtesy of the University of Nebraska State Museum. UNSM Photo # 1525.

Barbour's research had focused primarily on the acquisition, description, and classification of large fossil specimens and he expected the same from those who worked for him. A letter from museum Secretary Marjorie Shanafelt to the young paleontologist C. B. Schultz in 1928 warned him that if he did not send in more collections from his fieldwork in western Nebraska, he would not find himself as welcome as he might hope. In spite of



Figure 8. Fossil elephant exhibits in the Museum Building, 1915. Courtesy of the University of Nebraska State Museum. UNSM Photo # 1524.

Barbour's orientation toward the acquisition of specimens, the young men working for him were very much interested in establishing the detailed geological context and the relative ages of the fossils that they collected. One of their lasting scientific contributions was the development of a terrace sequence first published in 1945 and refined several times thereafter (Schultz and Stout 1945, 1977). This sequence facilitated the relative dating of fossil specimens, thus allowing paleontologists to demonstrate more precisely the temporal relationships and associations among related Pleistocene species, and also to determine what species existed at the same time. The rudiments of the system had probably been developed before the second World War under the influence of Professor A. L. Lugen (1935:174-45). Paleoindian research was initiated in the 1929 under the direction of C. Bertrand Schultz (Holen 1995; Schultz 1932), then in his second season of field work.

By 1938, Barbour's health was weakening. In March 1938, the Board of Regents authorized the hiring of an instructor or assistant professor in geology to relieve Barbour of his instructional duties. Schultz was appointed

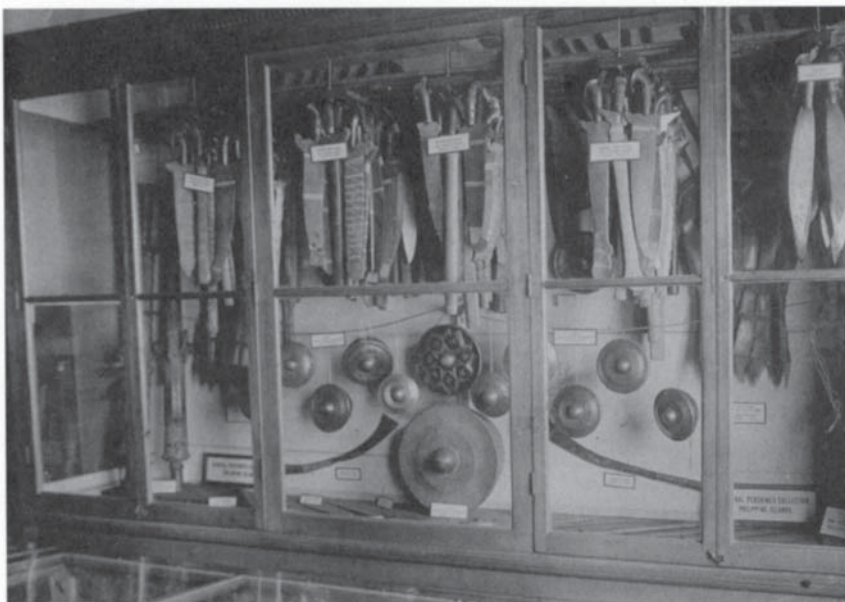


Figure 9. Pershing Collection of Philippine weapons, Museum Building, 1927. Courtesy of the University of Nebraska State Museum. UNSM Photo # 1522.

to this position in April. The next month he was appointed assistant director of the museum.

In 1941, at the age of 85, after fifty years at the helm, Barbour resigned his position as Director of the Museum. In June, C.B. Schultz was appointed in his place (Schultz 1971:3). No mention of this fact appears in the Minutes of the Board of Regents. Schultz was first mentioned as Director in the September issue of *The Nebraska Alumnus*. In September, the Board of Regents appointed Schultz as Curator of Paleontology; John Champe as Curator of Anthropology; E. F. Schramm as Curator of Mineralogy and Petrology; and D. D. Whitney as Curator of Zoology. These four, along with the deans of the Graduate College and of Arts and Sciences as *ex officio* members, were designated the Museum Advisory Committee (University of Nebraska, Board of Regents 1941; Schultz 1956:1). Events surrounding these appointments are evidently the basis of Schultz' recollection that at the time of his appointment, the Board of Regents directed him to consolidate the research collections of the various departments (Schultz 1971:4). This



Figure 10. Morrill Hall in 1957, home of the University Museum since 1927. Originally the Departments of Music and Art were also housed in Morrill Hall. Courtesy of the University of Nebraska State Museum.

proposed consolidation may have been stimulated by a note in the March issue of the alumni magazine that Bessey's herbarium had been re-activated under the guidance of Prof. T. J. Fitzpatrick after being neglected for twenty years since Bessey's death in 1915 (*The Nebraska Alumnus* 1941:10). The consolidation of collections was a long, slow process. The herbarium became administratively part of the museum in 1948. The entomology collections were added to the museum in 1958, though both collections continued to be housed elsewhere on campus. Other departments still retained departmental collections. Otherwise, Schultz' early years were a continuation of initiatives begun during Barbour's tenure. Following World War II, Frick's annual contributions and the Maiben endowment continued to fund the museum's paleontological expeditions. The museum also became involved with the Smithsonian Institution River Basin Surveys on the upper Republican River in southwestern Nebraska. The most important of these was the investigation of Paleoindian sites in Frontier County in the late 1940s and early 1950s that revealed the first evidence of Paleoindian activities other than big game hunting in North America (Fig. 13).

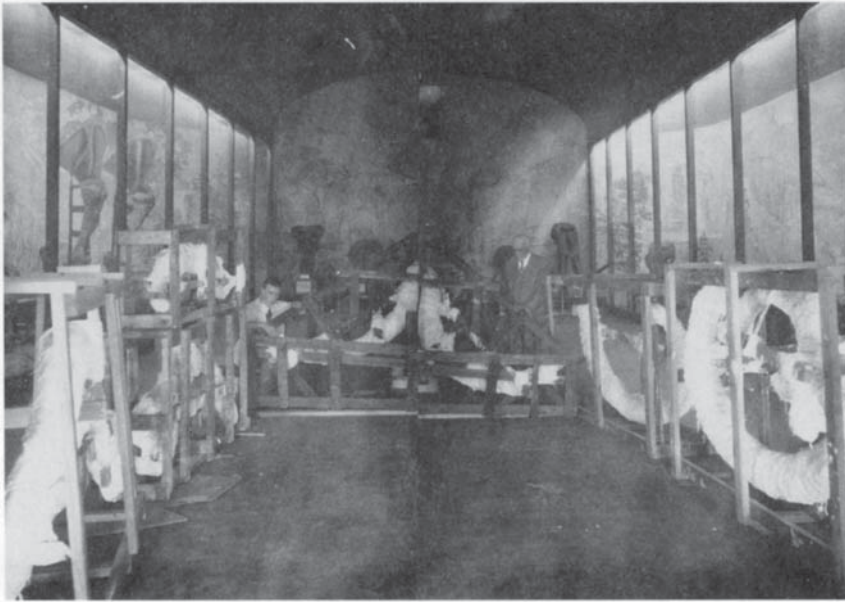


Figure 11. Elephant Hall in 1930. Fossils freshly brought in from the field were on exhibit for the State Fair. Courtesy of the University of Nebraska State Museum. UNSM Photo # 1604.

Schultz' principal contribution to museum exhibits was the development of the Hall of Nebraska Wildlife, a gallery of spectacular dioramas depicting birds and animals in their native habitats (Gilbert 1963). Most of these dioramas were funded by grants from the Cooper Foundation of Lincoln, Nebraska. Specific locations were selected and collections made for each of the habitat groups. To increase their reality, curved backgrounds were used and accomplished artists were employed to paint them. The principal artists were Iris Daugherty and Francis Lee Jaques, already an important wildlife painter. One of my favorites is the migratory waterfowl habitat on the North Platte River completed in 1959 (Fig. 14). Schultz was also responsible for the removal of the glass panels in Elephant Hall that had separated museum visitors from the specimens, thus increasing their visual impact.

Iris Daugherty received her professional training at the University of California-Berkeley. She painted backgrounds for habitat groups in the Hastings Museum in Hastings, Nebraska, before coming to the UNSM. Francis Lee Jaques had painted backgrounds for dioramas in the American



Figure 12. The Rushville Quarry about 1940. This mid-Pleistocene site produced the remains of mammoths, horses, camels and other large mammals. Courtesy of the University of Nebraska State Museum.

Museum of Natural History in New York. After painting the Morrill Hall dioramas he did those at the James Ford Bell Museum of Natural History Museum in Minneapolis before retiring in Minnesota. The Milwaukee Public Museum liked his waterfowl habitat design so well that they copied the concept for their own wildlife exhibits.

The Mueller Planetarium was added to the museum in 1958, a gift of Ralph Mueller who graduated from the University of Nebraska in 1898. The planetarium featured a dome 31 feet in diameter and was equipped with Spitz planetarium projecting equipment capable of recreating the parade of heavenly bodies on any day from 1000 BC to AD 2957. As initially designed, the theater would seat 110 adults or 160 young people. More than 20,000 people saw planetarium shows during its first six months of operation. Within ten years the number had grown to over 315,000 (Griesemer and Dunn 1973).

The UNSM's first branch museum, the Trailside Museum, opened at Fort Robinson in northwestern Nebraska in 1961 (Tanner 1962). Trailside exhibits interpreted the rich paleontological and geological record of the



Figure 13. Excavations at the Red Smoke, a multi-component Paleoindian site that helped to demonstrate the complexity of Paleoindian economies. Courtesy of the University of Nebraska State Museum.

region, one of the most famous Tertiary fossil mammal collecting areas in the world. With the opening of the Trailside Museum, the services of the museum, and the University, were brought to the people of western Nebraska living far from Lincoln. School groups as well as the general public were served.

Under Schultz' guidance, the museum began to build an endowment in order to ensure its future. The Agee, Maiben, Mueller, and other funds were established at this time. Endowments support a significant proportion of museum activities from research to exhibition and public education. At present, endowments contribute more than one-third of the museum's non-Federal income.

Perhaps Schultz' greatest contribution to the future development of the museum was a 1968 National Science Foundation (NSF) grant to develop a 65,000 square foot research collections facility in new Nebraska Hall, formerly the Elgin Watch Building. By this time, museum collections were stored all over campus, often in basements where they were subject to extreme heat and flooding. Part of the anthropological collection suffered



Figure 14. Habitat group, "Waterfowl along the North Platte River." Note how the foreground changes imperceptibly into the background painting. Courtesy of the University of Nebraska State Museum.

water damage from broken pipes while it was stored in the basement of Andrews Hall. While the herbarium and entomological collections were nominally part of the museum, they were still housed in academic departments.

Consolidation and Professionalization, 1970-present

Most of the research collections were moved into the newly renovated space in Nebraska Hall in 1970, making use of whatever storage furniture had been used previously or could be scrounged at minimal cost. For the first time, most of the museum's scientific divisions were housed together, although large portions of the paleontological and archaeological collections remained at a remote facility 25 miles away. The Parasitology Division was added to the museum at this time (Pritchard 1971). In 1981, it was named a National Resource Center for Parasitology by the American Society of

Parasitologists. With the exception of the vertebrate paleontology and parasitology divisions, nominal division curators had full-time appointments in academic departments. Direct supervision of the collections was normally the responsibility of part-time student appointees.

Schultz retired as director of the museum in 1973 though he continued as Executive Director of the Nebraska Academy of Sciences until his death in 1995. James H. Gunnerson, an anthropologist, was appointed Director of the Museum in 1974. His appointment reflected a significant change in the orientation of the museum because Gunnerson was the first non-paleontologist to hold the post in 87 years. During Gunnerson's tenure, the university committed to a dramatic expansion in the curatorial staff with professionally trained scientific curators being appointed in the Divisions of Anthropology, Botany, and Zoology. Under Gunnerson's leadership, curators were appointed as faculty members in the museum rather than owing their faculty status to an appointment in an academic department. For Anthropology, Botany and Zoology it was the first time that the collections had been guided by professionals whose primary responsibility was in the curation of the collections rather than in teaching. Reflecting the museum's traditional strength, a second curator of Vertebrate Paleontology was added to the faculty, a small portion of his appointment being in the academic department. A half-time Curator of Geology was also appointed, with a split appointment with the academic department.

With professionals in charge having primary responsibility to the collections, the care and management of the collections saw dramatic improvement. Whereas many of the collections had previously been neglected, housing and accessibility of the collections began to improve rapidly. Prior to this time collections had been stored in unsealed cabinets, on open shelves, or on the floor. Additional sealed steel cabinets were also purchased for the botany and entomology collections. The first steps toward computerization of the collections data began with the parasitology collection which was computerized in 1983.

With the appointment of new curators, research burgeoned, spreading well beyond the long-time research activities in paleontology. The museum became active in cultural resource management research, particularly in Nebraska. Anthropological, entomological and parasitological research expeditions fanned out to Middle and South America as well as to various sites in the United States. Since 1975, one of the museum's major research activities has been taking place at the Ashfall site in northeastern Nebraska, now a well-known state park, Ashfall Fossil Beds State Park. Here, the



Figure 15. Excavations at Ashfall Fossil Beds, now a State Park, in 1979. Courtesy of Gregory W. Brown.

skeletons of hundreds of animals were found in a volcanic ash bed where they had been buried ten million years ago (Fig. 15). There is an entire herd of rhinoceros, from the old bull to suckling infants. Even stomach contents and the imprints of bird feathers were preserved in the ash (Voorhies 1992).

The drawback to having faculty members with principal responsibility to the collections is that sometimes both the faculty member and the collections became separated from the students. The degree to which this was a problem varied from one academic discipline to another. It was often due as much to the changing theoretical orientation of the academic department as to the nature of the curator's appointment. For example, as molecular biology became increasingly important to the academic department, the importance of whole organisms in the museum collections decreased. Museum faculty members who taught in the academic departments, were often called upon to teach subjects that had little to do with their primary responsibility to the collections, further increasing the separation of the students from the collections.

Gunnerson resigned as museum director in 1982 and was followed by two interim directors, Allen Griesemer and John Janovy. Griesemer had been Associate Director of the Museum and Director of Educational Services, and also had served as interim director before Gunnerson joined the museum. Griesemer had been responsible for organizing the Encounter Center in 1980, a hands-on gallery oriented toward children of all ages, and in laying the groundwork for the organization of the Friends of the Museum. After Griesemer resigned in 1984 to become director of the San Bernadino County Museum, John Janovy, a parasitologist and well-known naturalist in the Department of Biological Sciences, was appointed Interim Director.

During these years preservation problems created by the lack of climate control in Morrill Hall were becoming increasingly acute. Rapid changes in temperature and humidity were contributing to the destruction of the specimens on exhibit. Momentum toward the remodeling of Morrill Hall, with particular attention to climate control, began during Gunnerson's tenure as director and continued during the interregnum under the leadership of Alan Griesemer and John Janovy with the continuing encouragement and support of Senator Don Weseley. They garnered financial and moral support from many groups across the state. School groups (K-6) participated under the rubric, "*Peanuts for Elephants*." During testimony before the legislature by fourth grade students from Montclair School in Millard, Senator Jerome Warner asked how long it would be before the fossils began to deteriorate if climate control were not installed. He was told that the process was already well underway. Funds for the renovation of Morrill Hall were appropriated by the legislature in June 1987. The remodeling program began under the direction of Hugh Genoways, a mammalogist, who was appointed Museum Director in 1986.

Genoways quickly developed a three-pronged program to improve collections management, to develop a museum studies program, and, with the completion of renovation of Morrill Hall, to develop exhibits. His initial efforts were directed toward the continued improvement of collection storage, guided by the recommendations of consultant conservation specialists. Based upon these recommendations, the museum was often successful in its applications to the National Science Foundation and the Institute for Museum Services for curation and conservation grants for all divisions. These grants contributed hundreds of thousands of dollars toward the improvement of collections storage, matched by similar contributions from the University. Computerization of collections continued, spreading to the anthropology, botany, entomology and zoology divisions.

Simultaneously, Genoways began to organize a museum studies program utilizing the talents of the museum faculty as well as faculty members from other academic departments and the Nebraska State Historical Society. As a result of this program the museum faculty is more involved in teaching and more students are working in the collections. The museum studies program now has more than one hundred graduates, most of whom have found work as museum professionals.

Perhaps the most daunting challenge facing Genoways was the empty gallery space in Morrill Hall following the renovation completed in 1988. In addition to the galleries that had been cleared in preparation for the renovation, thousands of square feet had been vacated by the Department of Geology and the Geology Library. It was a challenge that would require many years and many millions of dollars to meet.

New galleries are painfully slow to develop because of the amount of time and money required. Arts funding associated with the renovation project went toward the cleaning and renovation of the Dolan murals which were so much a part of the museum as it was originally conceived by Barbour. During the total renovation of Elephant Hall, a new "vanishing point" mural by Mark Marcuson was created at the far end of the gallery to replace the Dolan mural that had been destroyed by water condensation in the 1950s. Since 1988, three new permanent galleries have opened: Nomads of the Plains, the Toren Gallery of Ancient Life, and the Mesozoic Gallery. Many more remain to be developed. Also included in the remodeled museum was a temporary exhibit gallery, the Cooper Foundation Specialized Exhibits Gallery, which has been the scene of many exciting exhibits most of which have been created in-house, utilizing the research collections in Nebraska Hall. Students in the museum studies program developed the African Heritages gallery based on a somewhat larger temporary exhibit previously shown in the Cooper Gallery. Museum studies students also are involved in the development and renovation of exhibits through class work and internships.

Prospects

A university museum has a unique position as the conduit of the best scientific information between scientists and the public. Its exhibits are always under the scrutiny of world-class specialists in a way that the exhibits of most public museums are not. In a small way, Lincoln, Nebraska, is like Washington, DC, because both the seat of government and important museums are located here. Because the museum is located on the campus of the

University of Nebraska-Lincoln, the campus is already a familiar place to incoming students who often have visited the museum several times before enrolling in the University.

These students are essential to the long term success of the museum and to the role of museums in society. Systematics and collections go in and out of style. At the beginning of the twentieth century a great deal of ethnological research focused on museum collections. The research productivity of ethnological collections waned during the middle of the century but at the end of the century they are again receiving more attention. In the biological sciences, there has been a major move toward molecular biology. Nevertheless, organismic biology remains important to agriculture, conservation, forestry, fisheries, and wildlife as well as to students in the biological sciences who are concerned with evolutionary biology, population biology, or ecology. Collections must continue to be cared for and studied because they are the basis for much of our knowledge about life on earth.

It is not just a matter of caring for the past and for old collections. New collections must continue to be built so that they can contribute to the resolution of scientific and social questions as they arise. Endangered species, wetlands and global warming are all current problems about which collections from the past can be used to help understand the present. At the same time, it is essential to make new collections to document the changes that are taking place. It is because of the importance of collections from the past that university museums have an obligation to accept orphan collections, particularly those that have been accumulated at other institutions of higher learning. In the last ten years, the UNSM has adopted collections from Chadron State University, the University of Nebraska-Kearney, and the Joslyn Art Museum. The Parasitology Division in particular has benefited from the adoption of collections originally established at other institutions. In some cases, the addition of orphan collections will provide a critical mass that makes the combined collection far more important than any of the collections taken alone. "Crossing the Pacific," the current exhibition in the Cooper Gallery, would be much poorer had it not been for the collections formerly in the Joslyn Art Museum.

Some museums see themselves primarily as caretakers of collections. University museums cannot afford to take such a position because they also have the obligation to train the next generation of scholars in curation and collections based research. If they do not, the collections will not be accessible even if they are carefully preserved in drawers. Nevertheless, many university museums are under pressure and some already have become extinct. In these times of shrinking resources, every unit of the University must

constantly justify its existence. The purposes of a university are to educate students, to contribute to knowledge, and to disseminate knowledge. To be successful, university museums must play a vital part in these activities.

Conclusions

There are at least five keys to the success of the UNSM over the last century. First, the museum has a long record of public exhibition and participation beginning with Samuel Aughey, the first director. For more than a century, exhibits have been oriented toward public consumption as well as university needs. Faculty research throughout the state has brought the museum into direct contact with the citizens of the state. Many Nebraskans have participated in field work, often as volunteers. Staff members frequently identify natural history objects brought in for identification. Directors and other members of the staff have regularly been available for public presentations in Lincoln and Omaha, and across the state. As a result, there is tremendous public support for the museum. Shortly after her appointment in 1992, Vice-Chancellor Joan Leitzel sought to find out what was important to Nebraskans about their university. Football and the museum headed the list.

For more than a century museum faculty members have been involved in research, particularly in research leading to the growth of the collections. The outstanding example is the vertebrate paleontological collection which is one of the world's leading Cenozoic collections built primarily on the research activities of museum faculty members and their students. The parasitology collections, built through field research, and donation have become a national resource. Entomological research in the Neotropics has contributed mightily to the growth and international reputation of those collections. Museum faculty members have been successful in securing national competitive research grants from the National Science Foundation, National Geographic Society, and other sources. Many of them have also served on national review committees.

The first responsibility of museum faculty members is to the care and use of the collections. Though faculty members also have teaching responsibilities, they are secondary to curation. It is reasonable to ask if the teaching and research goals of the university would be accomplished more efficiently if the curators were cross-appointed with academic departments. Split appointments seldom work very well. With joint appointments, often at no additional salary, collections have been neglected and, as a consequence,

of decreasing value for teaching or for research. Even with half of a faculty member's salary coming from the museum, the academic department often has been the dominant partner. With the increasing importance of professional collections managers, the need for full time museum appointments may have changed somewhat. We are experimenting with a split appointment with 75% of the appointment, and the tenure home, in the museum. In this case, the curator/professor's primary responsibility is clearly to the museum but the focus of the person responsible for the collections is on science rather than on management. At the same time, the curator/professor recognizes that excellent collections management is a specialized profession essential to the well-being of the collections.

Museum faculty have always been involved in the training of students. Long before the advent of the Museum Studies Program, students were working throughout the museum. They gained hands-on experience from working with real collections and participated in the search for knowledge, which is the *sine qua non* of a university education. Museum faculty members often participate in allied academic departments by teaching and serving on masters or doctoral committees, usually with no part of their salary coming from the academic department. Museum faculty members also are active in campus-wide service ranging from the faculty senate to the Institutional Animal Care and Use Committee and the Institutional Review Board.

The position of the museum within the university hierarchy is also important. The director of the UNSM is on a par with university deans and reports directly to the vice-chancellor for research. The arrangement is sensible since the collections serve the College of Arts and Sciences, the Graduate College, and the Institute for Agriculture and Natural Resources. As a result, the museum gets to make its own case at a higher administrative and budgetary level than it would if the director reported to a dean or department chair.

The museum has been fortunate in having a series of directors with foresight and the ability to articulate their vision to the administration, to the campus, and to the public. University administrators have consistently recognized and fostered the broad activities of the museum. State funding alone will never be sufficient to fulfill the museum's broad mission. In addition to state funding, the museum draws more than one-third of its income from private endowments that have been secured primarily through the efforts of museum directors and faculty members who have also been successful in securing Federal funding for exhibits and curation of collections as well as for research activities.

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There are a number of additional sources of information on the Museum's history that have not been cited for specific pieces of information (Barbour 1894, 1938; Bohling 1989; Hirsch 1972; Meade 1991; Nicholson 1971; Schultz 1948, 1957).

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Many of the details about the museum's early history appeared in the annual Catalogue of the university. Later history has been recorded in *Museum Notes*, a popular publication first published in 1956. *Museum Notes* provides reliable information about natural history to a non-scientific audience. Recent issues have dealt with the turtles, insects, ethnobotany, mammalian teeth, flowers and archaeology.

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